



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/586,239

07/17/2006

Toru Shikayama

Q96010

1820

23373 7590 12/03/2008  
SUGHRUE MION, PLLC  
2100 PENNSYLVANIA AVENUE, N.W.  
SUITE 800  
WASHINGTON, DC 20037

EXAMINER

NGUYEN, HANH N

ART UNIT

PAPER NUMBER

2834

MAIL DATE

DELIVERY MODE

12/03/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.



## DETAILED ACTION

### *Remarks*

1. In view of amendments, the Examiner withdraws the objections to the drawings.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of Takedomi (US 5,087,844).

Regarding claim 1, AAPA discloses in Figs. 5 and 6 and pages 2 and 3 of the present invention a coreless linear motor comprising: a magnetic field system that includes a plurality of permanent magnets (201b) arranged in line, polarities of the adjacent permanent magnets being different from each other; and armatures that are disposed to face the rows of the permanent magnets through a magnetic gap and have coreless-type armature coils (102b and 103b) formed of a plurality of coil groups arranged, wherein when one of the magnetic field system and the armatures serves as a stator and the other serves as a movable member, the magnetic field system and the armatures relatively move, the magnetic field system is constructed so that two magnet rows of permanent magnets face each other (Fig. 6 of the present invention), the armatures are disposed so that two rows of armature coils are arranged between the

Art Unit: 2834

two rows of magnets in the magnetic field system, the armature coils and the substrate are fixed by mold resin, and the permanent magnet takes the profile of the armature.

AAPA fails to show the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate for connecting the coils is inserted into the gap between the branching parts.

However, Takedomi discloses a linear motor wherein the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils (19a, 19b in Figs. 1 and 2) in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate (18) for connecting the coils is inserted into the gap between the branching parts for the purpose of reducing torque ripple (Col. 3, lines 5-10).

Since AAPA and Takedomi are in the same field of endeavor, the purpose disclosed by Takedomi would have been recognized in the pertinent art of AAPA.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify AAPA by making the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate for connecting the coils is inserted into the gap between the branching parts as taught by Takedomi for the purpose of reducing torque ripple.

Regarding claim 2, AAPA also discloses wherein the substrate is formed by applying an insulating film and a copper-foil pattern on a plate (page 3 of the specification) and it would have been obvious at the time the invention was made to a person having an ordinary skill in the art to use aluminum for the plate, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

3. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shikayama (US 6,731,029) in view of Takedomi (US 5,087,844).

Regarding claim 3, Shikayama discloses a scanned linear motor comprising: a magnetic field system that includes a plurality of permanent magnets (23 in Fig. 1a) arranged in line, polarities of the adjacent permanent magnets being different from each other; armatures that are disposed to face the rows of the permanent magnets through a magnetic gap and have coreless-type armature coils (13, 14) formed of a plurality of coil groups arranged; a can (14 as described in Col. 5, lines 60-65) that seals the armature coils; and a refrigerant path that flows a refrigerant between the armature coils and the can (Col. 6, lines 10-20), wherein the magnetic field system is constructed so that two magnet rows of permanent magnets face each other (Fig. 1a), the armatures are disposed so that two rows of armature coils are arranged between the two rows of magnets in composing the magnetic field, the armature coils and the substrate are fixed by mold resin (the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable

Art Unit: 2834

weight), and the permanent magnet takes the profile of the armature. Shikayama fails to show the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate for connecting the coils is inserted into the gap between the branching parts.

However, Takedomi discloses a linear motor wherein the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils (19a, 19b in Figs. 1 and 2) in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate (18) for connecting the coils is inserted into the gap between the branching parts for the purpose of reducing torque ripple (Col. 3, lines 5-10).

Since Shikayama and Takedomi are in the same field of endeavor, the purpose disclosed by Takedomi would have been recognized in the pertinent art of Shikayama.

It would have been obvious at the time the invention was made to a person having an ordinary skill in the art to modify Shikayama by making the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts and a substrate for connecting the coils is inserted into the gap between the branching parts as taught by Takedomi for the purpose of reducing torque ripple.

4. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shikayama in view of Takedomi and further in view of AAPA.

It is noted that all limitation of the claimed invention as recited in claim 4 is fulfilled by Shikayama, Takedomi and AAPA (please refer to the rejection of claim 2).

### ***Response to Arguments***

5. Applicant's arguments filed on 9/9/2008 have been fully considered but they are not persuasive. The applicant's argument is on the ground that the reference the Examiner relies on, Takedomi, fails to show in Fig. 2 "the two rows of armature coils being attached to each other and at least one end of the two rows of armature coils in the direction perpendicular to the direction of a magnetic gap between the rows of magnet branches into two parts". The Examiner respectfully disagrees with the Applicant because the perspective view of Fig. 2 does not show clearly at one end of the coils are branched into two part. However, it is shown clearly in cross sectional view of Fig. 1 that both ends of the armature coils are branched into two parts. Fig. 1 also shows the two rows of armature coils being attached to each other because Webster's dictionary interprets "to attach" as "to bring into association". The two rows are being attached by the coil frame 18 and the two rows of armature coils can not move relatively from each other.

In short, the claims are interpreted as reasonable broad as possible and they still do not clearly and distinctly claim the subject matter of the invention. Therefore, the rejection is still deemed proper.

### ***Conclusion***

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Information on How to Contact USPTO***

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh N Nguyen whose telephone number is (571) 272-2031. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen Leung, can be reached on (571) 272-8188. The fax phone numbers for the organization where this application or proceeding is assigned are (571) 273-8300 for regular communications and (571) 273-8300 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1000.

HNN

December 1, 2008

Application/Control Number: 10/586,239

Page 8

Art Unit: 2834

/Nguyen N Hanh/

Primary Examiner, Art Unit 2834